

## PEER REVIEWED PUBLICATIONS BY OWEN R. COOPER, UNIVERSITY OF COLORADO

A total of 112 peer-reviewed publications (22 as first author) with an h-index of 55, as compiled by Web of Science.  
ResearcherID: H-4875-2013 ORCID: 0000-0001-7391-1161

112. Archibald, A. T., J. L. Neu, Y. Elshorbany, **O. R. Cooper**, P. J. Young, H. Akiyoshi, R. A. Cox, M. Coyle, R. Derwent, M. Deushi, A. Finco, G. J. Frost, I. E. Galbally, G. Gerosa, C. Granier, P.T. Griffiths, R. Hossaini, L. Hu, P. Jöckel, B. Josse, M. Y. Lin, M. Mertens, O. Morgenstern, M. Naja, V. Naik, S. Oltmans, D. A. Plummer, L.E. Revell, A. Saiz-Lopez, P. Saxena, Y.M. Shin, I. Shahid, D. Shallcross, S. Tilmes, T. Trickl, T. J. Wallington, T. Wang, H. M. Worden, G. Zeng (2020), Tropospheric Ozone Assessment Report: A critical review of changes in the tropospheric ozone burden and budget from 1850 to 2100, *Elem. Sci. Anth.*, 8:1. DOI: <https://doi.org/10.1525/elementa.2020.034>
111. Qu, Z., D. Henze, **O. R. Cooper** and J. Neu (2020), Impacts of global NO<sub>x</sub> inversions on NO<sub>2</sub> and ozone simulations, *Atmos. Chem. Phys.*, 20, 13109–13130, <https://doi.org/10.5194/acp-20-13109-2020>
110. GBD 2019 Risk Factors Collaborators (2020), Global burden of 87 risk factors in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019, *Lancet* 2020; 396: 1223–49, [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)30752-2/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30752-2/fulltext)
109. Ziemke, J. R., and **O. R. Cooper** (2019): Tropospheric Ozone [in "State of the Climate in 2019"]. *Bull. Amer. Meteor. Soc.*, 101 (8), Si–S429 <https://doi.org/10.1175/2020BAMSStateoftheClimate.1>
108. Chang, K.-L., **O. R. Cooper**, A. Gaudel, I. Petropavlovskikh and V. Thouret (2020), Statistical regularization for trend detection: An integrated approach for detecting long-term trends from sparse tropospheric ozone profiles, *Atmos. Chem. Phys.*, 20, 9915–9938, <https://doi.org/10.5194/acp-20-9915-2020>
107. Gaudel, A., **O. R. Cooper**, K.-L. Chang, I. Bourgeois, J. R. Ziemke, S. A. Strode, L. D. Oman, P. Sellitto, P. Nédélec, R. Blot, V. Thouret, C. Granier (2020), Aircraft observations since the 1990s reveal increases of tropospheric ozone at multiple locations across the Northern Hemisphere. *Sci. Adv.* 6, eaba8272, DOI: 10.1126/sciadv.aba8272
106. Xue, L., A. Ding, **O. Cooper**, X. Huang, W. Wang, D. Zhou, Z. Wu, A. McClure-Begley, I. Petropavlovskikh, M. O. Andreae, C. Fu (2020), ENSO and Southeast Asian biomass burning modulate subtropical trans-Pacific ozone transport, *National Science Review*, nwaa132, <https://doi.org/10.1093/nsr/nwaa132>
105. **Cooper, O. R.**, M. G. Schultz, S. Schröder, K.-L. Chang, A. Gaudel, G. Carbajal Benítez, E. Cuevas, M. Fröhlich, I. E. Galbally, D. Kubistin, X. Lu, A. McClure-Begley, S. Molloy, P. Nédélec, J. O'Brien, S. J. Oltmans, I. Petropavlovskikh, L. Ries, I. Senik, K. Sjöberg, S. Solberg, T. G. Spain, W. Spangl, M. Steinbacher, D. Tarasick, V. Thouret, X. Xu (2020), Multi-decadal surface ozone trends at globally distributed remote locations, *Elem Sci Anth*, 8(1), p.23. DOI: <http://doi.org/10.1525/elementa.420>
104. Tarasick, D. W., I. E. Galbally, **O. R. Cooper**, M. G. Schultz, G. Ancellet, T. Leblanc, T. J. Wallington, J. Ziemke, X. Liu, M. Steinbacher, J. Staehelin, C. Vigouroux, J. W. Hannigan, O. García, G. Foret, P. Zanis, E. Weatherhead, I. Petropavlovskikh, H. Worden, M. Osman, J. Liu, K.-L. Chang, A. Gaudel, M. Lin, M. Granados-Muñoz, A. M. Thompson, S. J. Oltmans, J. Cuesta, G. Dufour, V. Thouret, B. Hassler, T. Trickl and J. L. Neu (2019), Tropospheric Ozone Assessment Report: Tropospheric ozone from 1877 to 2016, observed levels, trends and uncertainties. *Elem Sci Anth*, 7(1), DOI: <http://doi.org/10.1525/elementa.376>
103. Ziemke, J. R., and **O. R. Cooper** (2019): Tropospheric Ozone [in "State of the Climate in 2018"]. *Bull. Amer. Meteor. Soc.*, 100(9), S58-S60, doi:10.1175/2019BAMSStateoftheClimate.1
102. Chang, K.-L., **Cooper, O. R.**, West, J. J., Serre, M. L., Schultz, M. G., Lin, M., Marécal, V., Josse, B., Deushi, M., Sudo, K., Liu, J., and Keller, C. A. (2019), A new method (M<sup>3</sup>Fusion v1) for combining observations and multiple model output for an improved estimate of the global surface ozone distribution, *Geosci. Model Dev.*, 12, 955-978, <https://doi.org/10.5194/gmd-12-955-2019>.
101. GBD 2017 Risk Factor Collaborators (2018), Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017, *The Lancet*, 392, 1923-1994. doi: [http://dx.doi.org/10.1016/S0140-6736\(18\)32225-6](http://dx.doi.org/10.1016/S0140-6736(18)32225-6).
100. Astitha, M., Kioutsioukis, I., Fisseha, G. A., Bianconi, R., Bieser, J., Christensen, J. H., **Cooper, O. R.**, Galmarini, S., Hogrefe, C., Im, U., Johnson, B., Liu, P., Nompmongcol, U., Petropavlovskikh, I., Solazzo, E., Tarasick, D. W., and Yarwood, G.: Seasonal ozone vertical profiles over North America using the AQMEII3 group of air quality models: model inter-comparison and stratospheric intrusions (2018), *Atmos. Chem. Phys.*, 18, 13925-13945, <https://doi.org/10.5194/acp-18-13925-2018>.
99. Lu, X., J. Hong, L. Zhang, **O. R. Cooper**, M. G. Schultz, X. Xu, T. Wang, M. Gao, Y. Zhao, Y. Zhang (2018), Severe surface ozone pollution in China: a global perspective, *Environ. Sci. Technol. Lett.* 5, 487-494.

98. Ziemke, J. R., and **O. R. Cooper** (2018): [Global Climate] Tropospheric Ozone [in "State of the Climate in 2017"]. *Bull. Amer. Meteor. Soc.*, 99(8), S56-S59, doi:10.1175/2018BAMSSStateoftheClimate.1.
97. Jaffe, D. A., **Cooper, O. R.**, Fiore, A. M., Henderson, B.H., Tonneson, G. S., Russell, A. G., et al. (2018), Scientific assessment of background ozone over the U.S.: Implications for air quality management, *Elem. Sci. Anth.*, 6(1):56, DOI: <http://doi.org/10.1525/elementa.309>
96. Mills, G., H. Pleijel, C. S. Malley, B. Sinha, **O. R. Cooper** et al. (2018), Tropospheric Ozone Assessment Report: Present-day tropospheric ozone distribution and trends relevant to vegetation, *Elem. Sci. Anth.*, 6(1):47, DOI: <https://doi.org/10.1525/elementa.302>
95. Gaudel, A., **O. R. Cooper**, et al. (2018), Tropospheric Ozone Assessment Report: Present-day distribution and trends of tropospheric ozone relevant to climate and global atmospheric chemistry model evaluation, *Elem. Sci. Anth.*, 6(1):39, DOI: <https://doi.org/10.1525/elementa.291>
94. Fleming, Z. L., R. M. Doherty, E. von Schneidemesser, C. S. Malley, **O. R. Cooper** et al. (2018), Tropospheric Ozone Assessment Report: Present-day ozone distribution and trends relevant to human health, *Elem Sci Anth.*, 6(1):12, DOI: <https://doi.org/10.1525/elementa.273>
93. Schultz, M. G., S. Schroeder, O. Lyapina, **O. R. Cooper**, et al. (2017), Tropospheric Ozone Assessment Report: Database and metrics data of global surface ozone observations, *Elem Sci. Anth.*, 5:58, DOI: <http://doi.org/10.1525/elementa.244>
92. Chang, K-L, I. Petropavlovskikh, **O. R. Cooper**, M. G. Schultz and T. Wang (2017), Regional trend analysis of surface ozone observations from monitoring networks in eastern North America, Europe and East Asia, *Elem Sci Anth.*, 5:50, DOI: <http://doi.org/10.1525/elementa.243>
91. Ziemke, J. R., and **O. R. Cooper** (2017): [Global Climate] Tropospheric Ozone [in "State of the Climate in 2016"]. *Bull. Amer. Meteor. Soc.*, 98 (8), S52-S54.
90. Kille, N., Baidar, S., Handley, P., Ortega, I., Sinreich, R., **Cooper, O. R.**, Hase, F., Hannigan, J. W., Pfister, G., and Volkamer, R. (2017), The CU mobile Solar Occultation Flux instrument: structure functions and emission rates of NH<sub>3</sub>, NO<sub>2</sub> and C<sub>2</sub>H<sub>6</sub>, *Atmos. Meas. Tech.*, 10, 373-392, doi:10.5194/amt-10-373-2017.
89. Zhang, Y., **O. R. Cooper**, A. Gaudel, A. M. Thompson, P. Nédélec, S.-Y. Ogino and J. J. West (2016), Tropospheric ozone change from 1980 to 2010 dominated by equatorward redistribution of emissions, *Nature Geoscience*, 9(12), p.875, doi: 10.1038/NGEO2827.
88. Petetin, H., V. Thouret, G. Athier, R. Blot, D. Boulanger, J.-M. Cousin, A. Gaudel, P. Nedelev and **O. Cooper** (2016), Diurnal cycle of ozone throughout the troposphere over Frankfurt as measured by MOZAIC- IAGOS commercial aircraft, *Elem Sci Anth*, 4:129, DOI: <http://doi.org/10.12952/journal.elementa.000129>.
87. Sun, L., L. Xue, T. Wang, J. Gao, A. Ding, **O. R. Cooper**, M. Lin, P. Xu, Z. Wang, X. Wang, L. Wen, Y. Zhu, T. Chen, L. Yang, Y. Wang, J. Chen, and W. Wang (2016), Significant increase of summertime ozone at Mount Tai in Central Eastern China, *Atmos. Chem. Phys.*, 16, 10637-10650, doi:10.5194/acp-16-10637-2016, 2016
86. Ziemke, J. R., and **O. R. Cooper** (2016): [Global Climate] Tropospheric Ozone [in "State of the Climate in 2015"]. *Bull. Amer. Meteor. Soc.*, 97 (8), S53-S55.
85. Strode, S. A., J. M. Rodriguez, J. A. Logan, **O. R. Cooper**, J. C. Witte, L. N. Lamsal, M. Damon, B. Van Aartsen, S. D. Steenrod, and S. E. Strahan (2015), Trends and variability in surface ozone over the United States, *J. Geophys. Res. Atmos.*, 120, 9020–9042, doi:10.1002/2014JD022784.
84. Lin, M., L. W. Horowitz, **O. R. Cooper**, D. Tarasick, S. Conley, L. T. Iraci, B. Johnson, T. Leblanc, I. Petropavlovskikh and E. L. Yates (2015), Revisiting the evidence of increasing springtime ozone mixing ratios in the free troposphere over western North America, *Geophys. Res. Lett.*, 42, doi:10.1002/2015GL065311.
83. **Cooper, O.**, and J. Ziemke (2015): [Global Climate] Tropospheric Ozone [in "State of the Climate in 2014"]. *Bull. Amer. Meteor. Soc.*, 96 (7), S48.
82. Monks, P. S., A.T. Archibald, A. Colette, **O. Cooper**, M. Coyle, R. Derwent, D. Fowler, C. Granier, K.S. Law, G.E. Mills, D.S. Stevenson, O. Tarasova, V. Thouret, E. von Schneidemesser, R. Sommariva, O. Wild, and M.L. Williams (2015), Tropospheric ozone and its precursors from the urban to the global scale from air quality to short-lived climate forcer, *Atmos. Chem. Phys.*, 15, 8889-8973, doi:10.5194/acp-15-8889-2015.
81. **Cooper, O. R.**, A. O. Langford, D. D. Parrish and D. W. Fahey (2015), Challenges of a lowered U.S. ozone standard, *Science*, 348, 1096-1097.
80. Lefohn, A. S., and **O. R. Cooper** (2015), Introduction to the Special Issue on Observations and Source Attribution of Ozone in Rural Regions of the Western United States, *Atmos. Environ.*, 109, 279-281, 10.1016/j.atmosenv.2015.03.030
79. Langford, A. O., C. J. Senff, R. J. Alvarez II, J. Brioude, **O. R. Cooper**, J. S. Holloway, M. Y. Lin, R. D. Marchbanks, R. B. Pierce, S. P. Sandberg, A. M. Weickmann, E. J. Williams (2015), An Overview of the 2013 Las Vegas Ozone Study (LVOS): Impact of stratospheric intrusions and long-range transport on surface air quality, *Atmos. Environ.*, 109, 305-322, doi: 10.1016/j.atmosenv.2014.08.040.

78. Jordan, C. E., A. A. P. Pszenny, W. C. Keene, **O. R. Cooper**, B. Deegan, J. Maben, M. Routhier, R. Sander, and A. H. Young (2015), Origins of aerosol chlorine during winter over north central Colorado, USA, *J. Geophys. Res. Atmos.*, **120**, 678–694, doi:10.1002/2014JD022294.
77. Lal, S., S. Venkataramani, N. Chandra, **O. R. Cooper**, J. Brioude, and M. Naja (2014), Transport effects on the vertical distribution of tropospheric ozone over western India, *J. Geophys. Res. Atmos.*, **119**, doi:10.1002/2014JD021854.
76. **Cooper, O.**, and J. Ziemke (2014): [Global Climate] Tropospheric Ozone [in "State of the Climate in 2013"]. *Bull. Amer. Meteor. Soc.*, **95** (7), S42.
75. **Cooper, O. R.**, D. D. Parrish, J. Ziemke, N. V. Balashov, M. Cupeiro, I. E. Galbally, S. Gilge, L. Horowitz, N. R. Jensen, J.-F. Lamarque, V. Naik, S. J. Oltmans, J. Schwab, D. T. Shindell, A. M. Thompson, V. Thouret, Y. Wang, R. M. Zbinden (2014), Global distribution and trends of tropospheric ozone: An observation-based review, *Elem Sci Anth*, **2**:29, DOI: <http://doi.org/10.12952/journal.elementa.000029>
74. Keene, W. C., J. L. Moody, J. N. Galloway, J. M. Prospero, **O. R. Cooper**, S. Eckhardt, and J. R. Maben (2014), Long-term Trends in Aerosol and Precipitation Composition over the Western North Atlantic Ocean at Bermuda, *Atmos. Chem. Phys.*, **14**, 8119–8135.
73. Parrish, D. D., J.-F. Lamarque, V. Naik, L. Horowitz, D.T. Shindell, J. Staehelin, R. Derwent, **O. R. Cooper**, H. Tanimoto, A. Volz-Thomas, S. Gilge, H.-E. Scheel, M. Steinbacher, and M. Fröhlich (2014), Long-term changes in lower tropospheric baseline ozone concentrations: Comparing chemistry-climate models and observations at northern midlatitudes, *J. Geophys. Res. Atmos.*, **119**, doi:10.1002/2013JD021435.
72. Lee, H.-J., S.-W. Kim, J. Brioude, **O. R. Cooper**, G. J. Frost, C.-H. Kim, R. J. Park, M. Trainer, and J.-H. Woo (2014), Transport of NO<sub>x</sub> in East Asia identified by satellite and in situ measurements and Lagrangian particle dispersion model simulations, *J. Geophys. Res. Atmos.*, **119**, doi:10.1002/2013JD021185
71. Moody, J. L., W. C. Keene, **O. R. Cooper**, K. J. Voss, R. Aryal, S. Eckhardt, B. Holben, J. R. Maben, M. A. Izquierre, and J. N. Galloway (2014), Flow climatology for physicochemical properties of dichotomous aerosol over the western North Atlantic Ocean at Bermuda, *Atmos. Chem. Phys.*, **14**, 691–717.
70. Hartmann, D.L., et al. (2013), Observations: atmosphere and surface. In *Climate change 2013 the physical science basis: Working group I contribution to the fifth assessment report of the intergovernmental panel on climate change* (pp. 159–254). Cambridge University Press.
69. **Cooper, O.**, and J. Ziemke (2013): [Global Climate] Tropospheric Ozone [in "State of the Climate in 2012"]. *Bull. Amer. Meteor. Soc.*, **94** (8), S38-S39.
68. Huang, M., K.W. Bowman, G. R. Carmichael, R. B. Pierce, H. M. Worden, M. Luo, **O. R. Cooper**, I. B. Pollack, T. B. Ryerson, and S. S. Brown (2013), Impact of Southern California anthropogenic emissions on ozone pollution in the mountain states: Model analysis and observational evidence from space, *J. Geophys. Res. Atmos.*, **118**, 12,784–12,803, doi:10.1002/2013JD020205.
67. Öztürk, F., R. Bahreini, N. L. Wagner, W. P. Dubé, C. J. Young, S. S. Brown, C. A. Brock, I. M. Ulbrich, J. L. Jimenez, **O. R. Cooper**, and A. M. Middlebrook (2013), Vertically resolved chemical characteristics and sources of submicron aerosols measured on a Tall Tower in a suburban area near Denver, Colorado in winter, *J. Geophys. Res. Atmos.*, **118**, doi:10.1002/2013JD019923.
66. Ryerson, T. B., A. E. Andrews, W. M. Angevine, T. S. Bates, C. A. Brock, B. Cairns, R. C. Cohen, **O. R. Cooper**, J. A. de Gouw, F. C. Fehsenfeld, et al. (2013), The 2010 California Research at the Nexus of Air Quality and Climate Change (CalNex) field study, *J. Geophys. Res.*, **118**, doi:10.1002/jgrd.50331.
65. Parrish, D. D., K. S. Law, J. Staehelin, R. Derwent, **O. R. Cooper**, H. Tanimoto, A. Volz-Thomas, S. Gilge, H.-E. Scheel, M. Steinbacher and E. Chan (2013), Lower tropospheric ozone at northern mid-latitudes: Changing seasonal cycle, *Geophys. Res. Lett.*, **40**, 1631-1636, DOI: 10.1002/grl.50303
64. Parrish, D. D., K. S. Law, J. Staehelin, R. Derwent, **O. R. Cooper**, H. Tanimoto, A. Volz-Thomas, S. Gilge, H.-E. Scheel, M. Steinbacher and E. Chan (2012), Long-term changes in lower tropospheric baseline ozone concentrations at northern mid-latitudes, *Atmos. Chem. Phys.*, **12**, 11485-11504, doi:10.5194/acp-12-11485-2012.
63. **Cooper, O. R.**, R.-S. Gao, D. Tarasick, T. Leblanc, and C. Sweeney (2012), Long-term ozone trends at rural ozone monitoring sites across the United States, 1990–2010, *J. Geophys. Res.*, **117**, D22307, doi:10.1029/2012JD018261.
62. Lin, M., A. Fiore, **O. R. Cooper**, L. Horowitz, A. O. Langford , H. Levy II , B. J. Johnson , V. Naik, S. Oltmans, C. Senff (2012), Springtime high surface ozone events over the western United States: Quantifying the role of stratospheric intrusions, *J. Geophys. Res.* **117**, D00V22, doi:10.1029/2012JD018151
61. Lin, M., A. M. Fiore, L. W. Horowitz, **O. R. Cooper**, V. Naik, J. Holloway, B. J. Johnson, A. Middlebrook, S. J. Oltmans, I. B. Pollack, T. B. Ryerson, J. X. Warner, C. Wiedinmyer, J. Wilson, B. Wyman (2012), Transport of Asian ozone pollution into surface air over the western United States in spring, *J. Geophys. Res.*, **117**, D00V07, doi:10.1029/2011JD016961.

60. Langford, A. O., J. Brioude, **O. R. Cooper**, C. J. Senff, R. J. Alvarez II, R. M. Hardesty, B. J. Johnson, and S. J. Oltmans (2012), Stratospheric influence on surface ozone in the Los Angeles area during late spring and early summer of 2010, *J. Geophys. Res.*, 117, D00V06, doi:10.1029/2011JD016766.
59. Roiger, A., Schlager, H., Schäfler, A., Huntrieser, H., Scheibe, M., Aufmhoff, H., **Cooper, O. R.**, Sodemann, H., Stohl, A., Burkhardt, J., Lazzara, M., Schiller, C., Law, K. S., and Arnold, F. (2011), In-situ observation of Asian pollution transported into the Arctic lowermost stratosphere, *Atmos. Chem. Phys.*, 11, 10975-10994, doi:10.5194/acp-11-10975-2011
58. **Cooper, O. R.**, S. J. Oltmans, B. J. Johnson, J. Brioude, W. Angevine, M. Trainer, D. D. Parrish, T. R. Ryerson, I. Pollack, P. D. Cullis, M. A. Ives, D. W. Tarasick, J. Al-Saadi, and I. Stajner (2011), Measurement of western U.S. baseline ozone from the surface to the tropopause and assessment of downwind impact regions, *J. Geophys. Res.*, 116, D00V03, doi:10.1029/2011JD016095.
57. Lance, S., M. D. Shupe, G. Feingold, C. A. Brock, J. Cozic, J. S. Holloway, R. H. Moore, A. Nenes, J. P. Schwarz, J. R. Spackman, K. D. Froyd, D. M. Murphy, J. Brioude, **O. R. Cooper**, A. Stohl, and J. F. Burkhardt (2011), Cloud condensation nuclei as a modulator of ice processes in Arctic mixed-phase clouds, *Atmos. Chem. Phys.*, 11, 8003-8015.
56. Lee, S.-H., S.-W. Kim, M. Trainer, G. J. Frost, S. A. McKeen, **O. R. Cooper**, F. Flocke, J. S. Holloway, J. A. Neuman, T. Ryerson, C. J. Senff, A. L. Swanson and A. M. Thompson (2011), Modeling ozone plumes observed downwind of New York City over the North Atlantic Ocean during the ICARTT field campaign, *Atmos. Chem. Phys.*, 11, 7375–7397.
55. Huang, X.-F., R. S. Gao, J. P. Schwarz, L.-Y. He, D. W. Fahey, L. A. Watts, A. McComiskey, **O. R. Cooper**, T.-L. Sun, L.-W. Zeng, M. Hu, Y.-H. Zhang (2011), Black carbon measurements in the Pearl River Delta region of China, *J. Geophys. Res.*, 116, D12208, doi:10.1029/2010JD014933.
54. Brock, C. A., Cozic, J., Bahreini, R., Froyd, K. D., Middlebrook, A. M., McComiskey, A., Brioude, J., **Cooper, O. R.**, Stohl, A., Aikin, K. C., de Gouw, J. A., Fahey, D. W., Ferrare, R. A., Gao, R.-S., Gore, W., Holloway, J. S., Hübler, G., Jefferson, A., Lack, D. A., Lance, S., Moore, R. H., Murphy, D. M., Nenes, A., Novelli, P. C., Nowak, J. B., Ogren, J. A., Peischl, J., Pierce, R. B., Pilewskie, P., Quinn, P. K., Ryerson, T. B., Schmidt, K. S., Schwarz, J. P., Sodemann, H., Spackman, J. R., Stark, H., Thomson, D. S., Thornberry, T., Veres, P., Watts, L. A., Warneke, C., and Wollny, A. G. (2011), Characteristics, sources, and transport of aerosols measured in spring 2008 during the aerosol, radiation, and cloud processes affecting Arctic Climate (ARCPAC) Project, *Atmos. Chem. Phys.*, 11, 2423-2453, doi:10.5194/acp-11-2423-2011.
53. Gilman, J. B., Burkhardt, J. F., Lerner, B. M., Williams, E. J., Kuster, W. C., Goldan, P. D., Murphy, P. C., Warneke, C., Fowler, C., Montzka, S. A., Miller, B. R., Miller, L., Oltmans, S. J., Ryerson, T. B., **Cooper, O. R.**, Stohl, A., and de Gouw, J. A. (2010), Ozone variability and halogen oxidation within the Arctic and sub-Arctic springtime boundary layer, *Atmos. Chem. Phys.*, 10, 10223-10236, doi:10.5194/acp-10-10223-2010.
52. Brioude, J., R. W. Portmann, J. S. Daniel, **O. R. Cooper**, G. J. Frost, K. H. Rosenlof, C. Granier, A. R. Ravishankara, S. A. Montzka, and A. Stohl (2010), Variations in ozone depletion potentials of very short-lived substances with season and emission region, *Geophys. Res. Lett.*, 37, L19804, doi:10.1029/2010GL044856.
51. Lamarque, J.-F., T. C. Bond, V. Eyring, C. Granier, A. Heil, Z. Klimont, D. Lee, C. Liousse, A. Mieville, B. Owen, M. G. Schultz, D. Shindell, S. J. Smith, E. Stehfest, J. Van Aardenne, **O. R. Cooper**, M. Kainuma, N. Mahowald, J. R. McConnell, V. Naik, K. Riahi, and D. P. van Vuuren (2010), Historical (1850–2000) gridded anthropogenic and biomass burning emissions of reactive gases and aerosols: methodology and application, *Atmos. Chem. Phys.*, 10, 7017-7039.
50. Tarasick, D. W., J. J. Jin, V. E. Fioletov, G. Liu, A. M. Thompson, S. J. Oltmans, J. Liu, C. E. Sioris, X. Liu, **O. R. Cooper**, T. Dann, and V. Thouret (2010), High-resolution tropospheric ozone fields for INTEX and ARCTAS from IONS ozonesondes, *J. Geophys. Res.*, 115, D20301, doi:10.1029/2009JD012918.
49. **Cooper, O. R.**, D. D. Parrish, A. Stohl, M. Trainer, P. Nédélec, V. Thouret, J. P. Cammas, S. J. Oltmans, B. J. Johnson, D. Tarasick, T. Leblanc, I. S. McDermid, D. Jaffe, R. Gao, J. Stith, T. Ryerson, K. Aikin, T. Campos, A. Weinheimer and M. A. Avery (2010), Increasing springtime ozone mixing ratios in the free troposphere over western North America, *Nature*, 463, 344-348, doi:10.1038/nature08708.
48. Brioude, J., **O. R. Cooper**, G. Feingold, M. Trainer, S. R. Freitas, D. Kowal, J.K. Ayers, E. Prins, P. Minnis, S. A. McKeen, G. J. Frost, and E.-Y. Hsie (2009), Effect of biomass burning on marine stratocumulus clouds off the California coast, *Atmos. Chem. Phys.*, 9, 8841-8856.
47. Monks, P. S., C. Granier, S. Fuzzi, A. Stohl, M. Williams, H. Akimoto, M. Amman, A. Baklanov, U. Baltensperger, I. Bey, N. Blake,, R.S. Blake, K. Carslaw, **O.R. Cooper**, F. Dentener, E. Frakou, G. Frost, S. Generoso, P. Ginoux, V. Grewe, A. Guenther, H.C. Hansson, S. Henne, J. Hjorth, A. Hofzumahaus, H. Huntrieser, M.E. Jenkin, J. Kaiser, M. Kanakidou, Z. Klimont, M. Kulmala, M.G. Lawrence, J.D. Lee, C. Liousse, G. McFiggans, A. Metzger, A. Mieville, N. Moussiopoulos, J.J. Orlando, C. O'Dowd, P.I. Palmer, D.D. Parrish, A. Petzold, U. Platt, U. Pöschl, A.S.H. Prévôt, C.E. Reeves, S. Reiman, Y. Rudich, K.

- Sellegrí, R. Steinbrecher, D. Simpson, H. ten Brink, J. Theloke, G. van der Werf, R. Vautard, V. Vestreng, Ch. Vlachokostas, R. von Glasow (2009), Atmospheric Composition Change – Global and Regional Air Quality, *Atmos. Environ.*, **43**, 5268-5350.
46. **Cooper, O. R.**, S. Eckhardt, J. H. Crawford, C. C. Brown, R. C. Cohen, T. H. Bertram, P. Wooldridge, A. Perring, W. H. Brune, X. Ren, D. Brunner, and S. L. Baughcum (2009), Summertime buildup and decay of lightning NO<sub>x</sub> and aged thunderstorm outflow above North America, *J. Geophys Res.*, **114**, D01101, doi:10.1029/2008JD010293.
45. Brioude, J., J.-P. Cammas, **O. R. Cooper**, and P. Nedelec (2008), Characterization of the composition, structure, and seasonal variation of the mixing layer above the extratropical tropopause as revealed by MOZAIC measurements, *J. Geophys. Res.*, **113**, D00B01, doi:10.1029/2007JD009184.
44. Brock, C. A., A. P. Sullivan, R. E. Peltier, R. J. Weber, A. Wollny, J. A. de Gouw, A. M. Middlebrook, E. L. Atlas, A. Stohl, M. K. Trainer, **O. R. Cooper**, F. C. Fehsenfeld, G. J. Frost, J. S. Holloway, G. Hübner, J. A. Neuman, T. B. Ryerson, C. Warneke, and J. C. Wilson (2008), Sources of particulate matter in the northeastern United States in summer: 2. Evolution of chemical and microphysical properties, *J. Geophys. Res.*, **113**, D08302, doi:10.1029/2007JD009241
43. **Cooper, O. R.**, M. Trainer, A. M. Thompson, S. J. Oltmans, D. W. Tarasick, J. C. Witte, A. Stohl, S. Eckhardt, J. Lelieveld, M. J. Newchurch, B. J. Johnson, R. W. Portmann, L. Kalnajs, M. K. Dubey, T. Leblanc, I. S. McDermid, G. Forbes, D. Wolfe, T. Carey-Smith, G. A. Morris, B. Lefer, B. Rappenglück, E. Joseph, F. Schmidlin, J. Meagher, F. C. Fehsenfeld, T. J. Keating, R. A. Van Curen and K. Minschwaner (2007), Evidence for a recurring eastern North America upper tropospheric ozone maximum during summer, *J. Geophys. Res.*, **112**, D23304, doi:10.1029/2007JD008710.
42. Brioude, J., **O. R. Cooper**, M. Trainer, T. B. Ryerson, J. S. Holloway, T. Baynard, J. Peischl, C. Warneke, J. A. Neuman, J. De Gouw, A. Stohl, S. Eckhardt, G. J. Frost, S. A. McKeen, E.-Y. Hsie, F. C. Fehsenfeld, and P. Nédélec (2007), Mixing between a stratospheric intrusion and a biomass burning plume, *Atmos. Chem. Phys.*, **7**, 4229-4235.
41. Tarasick, D. W., M. D. Moran, A. M. Thompson, T. Carey-Smith, Y. Rochon, V. S. Bouchet, W. Gong, P. A. Makar, C. Stroud, S. Ménard, L.-P. Crevier, S. Cousineau, J. A. Pudykiewicz, A. Kallaur, R. Moffet, R. Ménard, A. Robichaud, **O. R. Cooper**, S. J. Oltmans, J. C. Witte, G. Forbes, B. J. Johnson, J. Merrill, J. L. Moody, G. Morris, M. J. Newchurch, F. J. Schmidlin, E. Joseph, E (2007), Comparison of Canadian air quality forecast models with tropospheric ozone profile measurements above midlatitude North America during the IONS/ICARTT campaign: Evidence for stratospheric input, *J. Geophys. Res.*, **112**, D12S22, doi:10.1029/2006JD007782.
40. Thompson, A. M., J. B. Stone, J. C. Witte, S. K. Miller, R. B. Pierce, R. B. Chatfield, S. J. Oltmans, **O. R. Cooper**, A. L. Loucks, B. F. Taubman, B. J. Johnson, E. Joseph, T. L. Kucsera, J. T. Merrill, G. A. Morris, S. Hersey, G. Forbes, M. J. Newchurch, F. J. Schmidlin, D. W. Tarasick, V. Thouret, and J.-P. Cammas (2007), Intercontinental Chemical Transport Experiment Ozonesonde Network Study (IONS) 2004: 1. Summertime upper troposphere/lower stratosphere ozone over northeastern North America, *J. Geophys. Res.*, **112**, D12S12, doi:10.1029/2006JD007441.
39. Pittman, J. V., E. M. Weinstock, R. J. Oglesby, D. S. Sayres, J. B. Smith, J. G. Anderson, **O. R. Cooper**, S. C. Wofsy, I. Xueref, C. Gerbig, B. C. Daube, E. C. Richard, B. A. Ridley, A. J. Weinheimer, M. Loewenstein, H.-J. Jost, J. P. Lopez, M. J. Mahoney, T. L. Thompson, W. W. Hargrove, and F. M. Hoffman (2007), Transport in the subtropical lowermost stratosphere during the Cirrus Regional Study of Tropical Anvils and Cirrus Layers–Florida Area Cirrus Experiment, *J. Geophys. Res.*, **112**, D08304, doi:10.1029/2006JD007851.
38. **Cooper, O. R.**, A. Stohl, M. Trainer, A. Thompson, J. C. Witte, S. J. Oltmans, G. Morris, K. E. Pickering, J. H. Crawford, G. Chen, R. C. Cohen, T. H. Bertram, P. Wooldridge, A. Perring, W. H. Brune, J. Merrill, J. L. Moody, D. Tarasick, P. Nédélec, G. Forbes, M. J. Newchurch, F. J. Schmidlin, B. J. Johnson, S. Turquety, S. L. Baughcum, X. Ren, F. C. Fehsenfeld, J. F. Meagher, N. Spichtinger, C. C. Brown, S. A. McKeen, I. S. McDermid and T. Leblanc (2006), Large upper tropospheric ozone enhancements above mid-latitude North America during summer: In situ evidence from the IONS and MOZAIC ozone monitoring network, *J. Geophys. Res.*, **111**, D24S05, doi:10.1029/2006JD007306.
37. Brioude, J., J.-P. Cammas, and **O. R. Cooper**, Stratosphere-troposphere exchange in a summertime extratropical low: analysis, *Atmos. Chem. Phys.*, **6**, 2337-2353, 2006.
36. Owen, R. C., **O. R. Cooper**, A. Stohl, and R. E. Honrath (2006), An analysis of the mechanisms of North American pollutant transport to the central North Atlantic lower free troposphere, *J. Geophys. Res.*, **111**, D23S58, doi:10.1029/2006JD007062.
35. Beirle, S., N. Spichtinger, A. Stohl, K. L. Cummins, T. Turner, D. Boccippio, **O. R. Cooper**, M. Wenig, M. Grzegorski, U. Platt, and T. Wagner, Estimating the NO<sub>x</sub> produced by lightning from GOME and NLDN data: a case study in the Gulf of Mexico, *Atmos. Chem. Phys.*, **6**, 1075-1089, 2006.

34. Warneke, C., J.A. de Gouw , A. Stohl, **O. R. Cooper**, P.D. Goldan, W.C. Kuster, J.S. Holloway, E.J. Williams, B.M. Lerner, S.A. McKeen, M. Trainer, and F.C. Fehsenfeld (2006), Biomass Burning and Anthropogenic Sources of CO over New England in the Summer 2004, *J. Geophys. Res.*, 111, D23S15, doi:10.1029/2005JD006878.
33. de Gouw, J. A., C. Warneke, A. Stohl, A. G. Wollny, C. A. Brock, **O. R. Cooper**, J. S. Holloway, M. Trainer and F. C. Fehsenfeld (2006), Volatile organic compounds composition of merged and aged forest fire plumes from Alaska and western Canada, *J. Geophys. Res.*, 111, D10303, doi:10.1029/2005JD006175.
32. **Cooper, O. R.**, A. Stohl, G. Hübler, E. Y. Hsie, D. D. Parrish, A. F. Tuck, G. N. Kiladis, S. J. Oltmans, B. J. Johnson, M. Shapiro, J. L. Moody and A. S. Lefohn, Direct transport of mid-latitude stratospheric ozone into the lower troposphere and marine boundary layer of the tropical Pacific Ocean, *J. Geophys. Res.*, 110, D23310, doi:10.1029/2005JD005783, 2005.
31. Koch, S. E., B. D. Jamison, C. Lu, T. L. Smith, E. I. Tollerud, N. Wang, T. P. Lane, M. A. Shapiro, D. D. Parrish and **O. R. Cooper**, Turbulence and gravity waves within an upper-level front, *Journal of the Atmospheric Sciences*, 62, 3885-3908, 2005.
30. **Cooper, O. R.**, A. Stohl, S. Eckhardt, D. D. Parrish, S. J. Oltmans, B. J. Johnson, P. Nedelec, F. J. Schmidlin, M. J. Newchurch, Y. Kono and K. Kita, A springtime comparison of tropospheric ozone and transport pathways on the east and west coasts of the United States, *J. Geophys. Res.*, 110, D05S90, doi:10.1029/2004JD005183, 2005.
29. Huntrieser, H., J. Heland, H. Schlager, C. Forster, A. Stohl, H. Aufmhoff, F. Arnold, E. Scheel, M. Campana, S. Gilge, R. Eixmann, and **O. Cooper**, Intercontinental air pollution transport from North America to Europe: Experimental evidence from airborne measurements and surface observations, *J. Geophys. Res.* 110, D01305, doi:10.1029/2004JD005045, 2005.
28. Jones, G. V., M. A. White, **O. R. Cooper** and K. Storchmann, Climate Change and Global Wine Quality, *Climatic Change*, 73, 319-343, DOI: 10.1007/s10584-005-4704-2, 2005.
27. **Cooper, O. R.**, C. Forster, D. Parrish, M. Trainer, E. Dunlea, T. B. Ryerson, G. Hübler, F. Fehsenfeld, D. Nicks, J. Holloway, J. Nowak, C. Brock, J. de Gouw, C. Warneke, J. Roberts, F. Flocke J. Moody, A case study of trans-Pacific warm conveyor belt transport: The influence of merging airstreams on trace gas import to North America, *J. Geophys. Res.*, 109, D23S08, doi:10.1029/2003JD003624, 2004.
26. **Cooper, O. R.**, C. Forster, D. Parrish, E. Dunlea, G. Hübler, F. Fehsenfeld, J. Holloway, S. Oltmans, B. Johnson, A. Wimmers, and L. Horowitz, On the life-cycle of a stratospheric intrusion and its dispersion into polluted warm conveyor belts, *J. Geophys. Res.*, 109, D23S09, doi:10.1029/2003JD004006, 2004.
25. Brock, C. A., P. K. Hudson, E. R. Lovejoy, A. Sullivan, J. B. Nowak, L. G. Huey, **O. R. Cooper**, D. J. Cziczo, J. de Gouw, F. C. Fehsenfeld, J. S. Holloway, G. Hübler, B. G. Lafleur, J. A. Neuman, D. K. Nicks, Jr., D. A. Orsini, D. D. Parrish, T. B. Ryerson, D. J. Tanner, M. Trainer, C. Warneke, R. J. Weber, and J. C. Wilson, Particle characteristics following cloud-modified transport from Asia to North America, *J. Geophys. Res.*, 109, doi:10.1029/2003JD004198, 2004.
24. de Gouw, J. A., **O. R. Cooper**, C. Warneke, P. K. Hudson, C. A. Brock, F. C. Fehsenfeld, J. S. Holloway, G. Hübler, D. M. Murphy, J. B. Nowak, D. D. Parrish, T. B. Ryerson, and M. Trainer, Chemical composition of air pollution transported from Asia to the U.S. west coast during ITCT2K2: Fossil Fuel versus biomass burning signatures, *J. Geophys. Res.*, 109, doi:10.1029/2003JD004202, 2004.
23. Forster, C., **O. Cooper**, A. Stohl, S. Eckhardt, P. James, E. Dunlea, D. Nicks Jr., J. Holloway, G. Hübler, D. Parrish, T. Ryerson and M. Trainer, Lagrangian transport model forecasts and a transport climatology for the Intercontinental Transport and Chemical Transformation 2002 (ITCT 2K2) measurement campaign, *J. Geophys. Res.*, 109, D07S92, doi:10.1029/2003JD003589, 2004.
22. Goldstein, A. H., D. B. Millet, M. McKay, L. Jaegle, L. Horowitz, **O. Cooper**, R. Hudman, D. Jacob, S. Oltmans, and A. Clark, Impact of Asian emissions on observations at Trinidad Head, California, during ITCT 2K2, *J. Geophys. Res.*, 109, doi:10.1029/2003JD004406, 2004.
21. Hudman, R. C., D. J. Jacob, **O.R. Cooper**, M. J. Evans, C. L. Heald, R. J. Park, F. Fehsenfeld, F. Flocke, J. Holloway, G. Hübler, K. Kita, M. Koike, Y. Kondo, A. Neuman, J. Nowak, S. Oltmans, D. Parrish, J. M. Roberts, and T. Ryerson, Ozone production in transpacific Asian pollution plumes and implications for ozone air quality in California, *J. Geophys. Res.*, 109, D23S10, doi:10.1029/2004JD004974, 2004.
20. McCaffery, S. J., S. A. McKeen, E.-Y. Hsie, D. D. Parrish, **O. R. Cooper**, J. S. Holloway, G. Hübler, F. C. Fehsenfeld, and M. Trainer, A case study of stratosphere-troposphere exchange during the 1996 North Atlantic Regional Experiment, *J. Geophys. Res.*, 109, doi:10.1029/2003JD004007, 2004.
19. Nowak, J. B., D. D. Parrish, J. A. Neuman, J. S. Holloway , **O. R. Cooper**, M. Trainer, T. B. Ryerson, D. K. Nicks, Jr., F. Flocke, J. M. Roberts, E. Atlas, J. A. de Gouw, S. Donnelly, E. Dunlea, G. Hübler, L. G. Huey, S. Schauffler, D. J. Tanner, C. Warneke, F. C. Fehsenfeld, Gas-Phase Chemical Characteristics of Asian Emission Plumes Observed During ITCT 2k2 Over the Eastern North Pacific Ocean, *J. Geophys. Res.*, 109, D23S19, doi:10.1029/2003JD004488, 2004.

18. Parrish, D. D., Y. Kondo, **O. R. Cooper**, C. A. Brock, D. A. Jaffe, M. Trainer, T. Ogawa, G. Hübler, and F. C. Fehsenfeld, Intercontinental Transport and Chemical Transformation 2002 (ITCT 2K2) and Pacific Exploration of Asian Continental Emission (PEACE) experiments: An overview of the 2002 winter and spring intensives, *J. Geophys. Res.*, 109, D23S01, doi:10.1029/2004JD004980, 2004.
17. Price, H. U., D. A. Jaffe, **O. R. Cooper**, and P. V. Doskey, Photochemistry, ozone production and dilution during long-range transport episodes from Eurasia to the northwest U.S., *J. Geophys. Res.*, 109, doi:10.1029/2003JD004400, 2004.
16. Stohl, A. **O. R. Cooper** and P. James, A cautionary note on the use of meteorological analysis fields for quantifying atmospheric mixing, *J. Atmos. Sci.*, 61, 1446–1453, 2004a.
15. Stohl, A., **O. Cooper**, R. Damoah, F. Fehsenfeld, C. Forster, E. Hsie, G. Hübler, D. Parrish, and M. Trainer, Forecasting for a Lagrangian aircraft campaign, Atmospheric Chemistry and Physics, Vol. 4, pp 1113-1124, 12-7-2004b.
14. Jaffe, D., J. Snow, and **O. Cooper**, The 2001 Asian Dust events: Transport and Impact on Surface Aerosol Concentrations in the U.S., *EOS*, 84, pp. 501,507, 2003.
13. Stohl, A., C. Forster, S. Eckhardt, N. Spichtinger, H. Huntrieser, J. Heland, H. Schlager, H. Aufmhoff, F. Arnold and **O. Cooper**, A backward modeling study of intercontinental pollution transport using aircraft measurements, *J. Geophys. Res.*, 108(D12), 4370, 10.1029/2002JD002862, 2003.
12. Stohl, A., H. Huntrieser, A. Richter, S. Beirle, **O. Cooper**, S. Eckhardt, C. Forster, P. James, N. Spichtinger, T. Wagner, J. Burrows, and U. Platt, Rapid intercontinental air pollution transport associated with a meteorological bomb, *Atmos. Chem. Phys.*, 3, 2101-2141, 2003.
11. Trickl, T., **O. R. Cooper**, H. Eisele, P. James, R. Muecke, and A. Stohl, Intercontinental transport and its influence on the ozone concentrations over central Europe – Three case studies, *J. Geophys. Res.*, 108(D12), 8530, 10.1029/2002JD002735, 2003.
10. Zanis, P., T. Trickl, A. Stohl, H. Wernli, **O. Cooper**, C. Zerefos, H. Gaeggeler, C. Schnabel, L. Tobler, P. W. Kubik, A. Priller, H. E. Scheel, H. J. Kanter, P. Cristofanelli, C. Forster, P. James, E. Gerasopoulos, A. Delcloo, A. Papayannis, and H. Claude, Forecast, observation and modeling of a deep stratospheric intrusion event over Europe, *Atmos. Chem. Phys.*, 3, 763-777, 2003.
9. **Cooper, O. R.**, J. L. Moody, D. D. Parrish, M. Trainer, T. B. Ryerson, J. S. Holloway, G. Hübler, F. C. Fehsenfeld, and M. J. Evans (2002), Trace gas composition of midlatitude cyclones over the western North Atlantic Ocean: A conceptual model, *J. Geophys. Res.*, 107(D7), 4056, doi:10.1029/2001JD000901.
8. **Cooper, O. R.**, J. L. Moody, D. D. Parrish, M. Trainer, J. S. Holloway, G. Hübler, F. C. Fehsenfeld, and A. Stohl (2002), Trace gas composition of midlatitude cyclones over the western North Atlantic Ocean: A seasonal comparison of O<sub>3</sub> and CO, *J. Geophys. Res.*, 107(D7), 4057, doi:10.1029/2001JD000902.
7. **Cooper, O. R.**, J. L. Moody, D. D. Parrish, M. Trainer, J. S. Holloway, T. B. Ryerson, G. Hübler, F. C. Fehsenfeld, S. J. Oltmans and M. J. Evans (2001), Trace gas signatures of the airstreams within North Atlantic cyclones - Case studies from the NARE'97 aircraft intensive, *J. Geophys. Res.*, 106, 5437-5456, doi:10.1029/2000JD900574.
6. **Cooper, O. R.**, J. L. Moody, T. Thornberry, M. Town and M. A. Carroll, PROPHET'98 meteorological overview and air-mass classification, *J. Geophys. Res.*, 24,289-24,299, 2001.
5. Sumner, A. L., P. B. Shepson, T. L. Couch, T. Thornberry, M. A. Carroll, S. Sillman, M. Pippen, S. Bertman, D. Tan, I. Falloona, W. Brune, V. Young, **O. Cooper**, J. Moody, and W. Stockwell, A study of formaldehyde chemistry above a forest canopy, *J. Geophys. Res.*, 106, 24387-24406, 2001.
4. Thornberry, T., M. A. Carroll, J. Keeler, S. Sillman, S. Bertman, M. Pippen, K. Ostling, J. Grossenbacher, P. Shepson, **O. Cooper**, J. Moody, and B. Stockwell, Observations of reactive nitrogen and speciation of NO<sub>y</sub> during PROPHET summer 1998, *J. Geophys. Res.*, 106, 24359-24386, 2001.
3. **Cooper, O. R.** and J. L. Moody, Meteorological controls on ozone at an elevated eastern U.S. regional background monitoring site, *J. Geophys. Res.*, 105, 6855-6869, 2000.
2. Parrish, D. D., J. S. Holoway, R. Jakoubek, M. Trainer, T. B. Ryerson, G. Hübler, F. C. Fehsenfeld, J. L. Moody and **O. R. Cooper**, Mixing of anthropogenic pollution with stratospheric ozone: A case study from the North Atlantic wintertime troposphere, *J. Geophys. Res.*, 105, 24,363-24,374, 2000.
1. **Cooper, O. R.**, J. L. Moody, J. C. Davenport, S. J. Oltmans, B. J. Johnson, X. Chen, P. B. Shepson, and J. T. Merrill, Influence of springtime weather systems on vertical ozone distributions over three North American sites, *J. Geophys. Res.*, 103, 22,001-22,013. 1998.